REMARKS

Claims 1, 3-9, and 16-25 are pending in the present application.

Applicants would like to thank Examiner Wong for the helpful and courteous discussion with their undersigned Representative on July 31, 2003. During this discussion, various amendments and arguments were discussed to address the rejections under 35 U.S.C. § 112, first and second paragraphs, 35 U.S.C. § 102(b), and 35 U.S.C. § 103(a).

The rejections of: (a) Claims 1, 2, and 9 under 35 U.S.C. § 102(b) over EP 770686 and JP 61-10506; (b) Claims 9 and 10 under 35 U.S.C. § 102(b) over Chen et al and Rizzi et al; and (c) Claims 1-15 under 35 U.S.C. § 102(b) over EP 770686, JP 61-10506, Chen et al and Rizzi et al, are obviated by amendment.

The present invention provides, in part, a flavor precursor composition comprising as an active ingredient a flavor precursor compound selected from the group consisting of:

a flavor precursor compound which is an organic compound represented by Formula (1) shown below in which R^1H is a non-volatile compound and R^2H is a volatile compound having in the molecule a furan ring structure, including a structure where part or all of the carbon-carbon double bonds thereof are hydrogenated, or a thiophene ring structure, including a structure where part or all of the carbon-carbon double bonds thereof are hydrogenated, said Formula (1) being:

$$R^1\text{—}(S)_n\text{—}R^2 \qquad (1)$$

wherein n represents an integer of 1 or 3, R^1H represents an organic compound having a structure in which the functional group R^1 is bound to a hydrogen atom and R^2H represents an organic compound having a structure in which the functional group R^2 is bound to a hydrogen atom, wherein R^2 is selected from the group consisting of 2-Furfuryl, 2-Methyl-3-furyl, 5-Methyl-2-furfuryl, 3-Furyl, 1-(2-Furyl)ethyl, 1-(2-Methyl-3-furylthio)ethyl, 2-Furyl, 2-Thenyl, 2-Methyl-3-thienyl, 5-Methyl-2-thenyl, 3-Thienyl, 1-(2-Thienyl)ethyl, 1-(2-Methyl-3-thienylthio)ethyl, 2-Thienyl and hydrogenated forms thereof and the functional group R^1 is selected from the group consisting of functional groups in which R^1SH represents a compound selected from the group consisting of cysteine, homocysteine, glutathione, γ-glutamylcysteine, and cysteinylglycine, wherein R^1SH represents an organic compound having a structure in which the functional group R^1 is bound to the thiol group (see Claim 1).

The present invention further provides, in part, a novel sulfide compound which is an organic compound represented by Formula (2) shown below in which R^1H is a non-volatile compound and R^2H is a volatile compound having in the molecule a furan ring structure, including a structure where part or all of the carbon-carbon double bonds thereof are hydrogenated, or a thiophene ring structure, including a structure where part or all of the carbon-carbon double bonds thereof are hydrogenated, said Formula (2) being:

$$R^1—(S)_m—R^2 \qquad (2)$$

wherein m represents an integer of 2 or 3, R^1H represents an organic compound having a structure in which the functional group R^1 is bound to a hydrogen atom and R^2H represents an organic compound having a structure in which the functional group R^2 is bound to a hydrogen atom, wherein R^2 is selected from the group consisting of 2-Furfuryl, 2-Methyl-3-furyl, 5-

Methyl-2-furfuryl, 3-Furyl, 1-(2-Furyl)ethyl, 1-(2-Methyl-3-furylthio)ethyl, 2-Furyl, 2-Thenyl, 2-Methyl-3-thienyl, 5-Methyl-2-thenyl, 3-Thienyl, 1-(2-Thienyl)ethyl, 1-(2-Methyl-3-thienylthio)ethyl, 2-Thienyl and hydrogenated forms thereof and the functional group R^1 is selected from the group consisting of functional groups in which R^1SH represents a compound selected from the group consisting of cysteine, homocysteine, glutathione, γ-glutamylcysteine, cysteinylglycine, wherein R^1SH represents an organic compound having a structure in which the functional group R^1 is bound to the thiol group,

and

a novel compound which is an organic compound represented by Formula (3) shown below in which R^1H is a non-volatile compound and R^2H is a volatile compound having in the molecule a furan ring structure , including a structure where part or all of the carbon-carbon double bonds thereof are hydrogenated, or a thiophene ring structure, including a structure where part or all of the carbon-carbon double bonds thereof are hydrogenated, said Formula (3) being:

$$R^1—S—R^2 \qquad (3)$$

wherein R^1H represents an organic compound having a structure in which the functional group R^1 is bound to a hydrogen atom and R^2H represents an organic compound having a structure in which the functional group R^2 is bound to a hydrogen atom, wherein R^2 is selected from the group consisting of 2-Methyl-3-furyl, 5-Methyl-2-furfuryl, 3-Furyl, 1-(2-Furyl)ethyl, 1-(2-Methyl-3-furylthio)ethyl, 2-Furyl, 2-Methyl-3-thienyl, 5-Methyl-2-thenyl, 3-Thienyl, 1-(2-Thienyl)ethyl, 1-(2-Methyl-3-thienylthio)ethyl, 2-Thienyl and hydrogenated forms thereof and the functional group R^1 is selected from the group consisting of functional

groups in which R^1SH represents a compound selected from the group consisting of cysteine, homocysteine, glutathione, γ-glutamylcysteine, and cysteinylglycine, wherein R^1SH represents an organic compound having a structure in which the functional group R^1 is bound to the thiol group (see Claim 9).

It is Applicants position that none of the art of record discloses or suggests the specific sulfide compounds *as flavor precursor compounds* now claimed herein. In particular, Applicants have informed their undersigned Representative that none of the art of record discloses or suggests the claimed combinations of volatile and non-volatile compounds represented by Formulae (1) and (2) *as* flavor precursor compounds. The standard for determining anticipation requires that the reference "must teach every element of the claim" (MPEP §2131). Accordingly, EP 770686, JP 61-10506, Chen et al and Rizzi et al fail to meet this standard and, therefore, the art of record fails to anticipate the present invention.

Moreover, Applicants submit that EP 770686, JP 61-10506, Chen et al and Rizzi et al cannot even qualify as homologs of the present compounds of Formulae (1) or (2). The Federal Circuit has defined the parameters that may be considered in determining the proper use of chemical structure as the basis for obviousness rejections under 35 U.S.C. §103 in *In re Jones*, 21 USPQ2d 1941 (Fed. Cir. 1992) (**copy enclosed**). The court cited the following examples of relationships that have given rise to a *prima facie* case of obviousness:

> triorthoesters and tetraorthoesters;
>
> stereoisomers;
>
> adjacent homologs and structural isomers; and
>
> acid and ethyl ester (*Id.*, at 1943).

In the present case, there exists no motivation to modify the compounds disclosed by EP 770686, JP 61-10506, Chen et al and Rizzi et al to contain any of the claimed compounds of Formulae (1) or (2). Because EP 770686, JP 61-10506, Chen et al and Rizzi et al are silent in this regard and because the relationship between the claimed compounds and those disclosed by EP 770686, JP 61-10506, Chen et al and Rizzi et al fail to satisfy any of the above-mentioned relationships to be defined as homologs by the Federal Circuit, the present invention is not even obvious in view of the art of record.

Therefore, withdrawal of this ground of rejection is requested.

The rejections of Claims 1-15 under 35 U.S.C. § 112, first and second paragraphs, are obviated by amendment.

Specifically, the claims have been amended to remove the parenthetical phrases, thereby rendering moot the rejection under 35 U.S.C. § 112, second paragraph.

Regarding the rejection under 35 U.S.C. § 112, first paragraph, Applicants have amended the claims to define the volatile and non-volatile compounds to be commensurate in scope to those described in the present specification. Further, Applicants have amended the claims to provide sufficient definition of R^1 and R^2.

In view of the amendments set forth herein, Applicants request withdrawal of the rejections under 35 U.S.C. § 112, first and second paragraphs.

Finally, during the discussion with Applicants' undersigned Representative, the Examiner pointed to the specification at page 8, lines 19-24, which states:

> On the other hand, there have been indeed known several compounds in the form in which a flavor-presenting non-furan is imparted with a non-volatile nature, but none of them have been known as having an use as a flavor precursor compound such as the one according to the present invention.

The Examiner further stated that she may interpret this statement as an admission that any compound falling within the scope of the present claims that lacks a furan ring is well known in the art. Applicants have informed their undersigned Representative that, in accordance with their duty to disclose under 37 C.F.R. §1.56(b), all references that are material to patentability have been disclosed, including the references related to the aforementioned statement.

Applicants submit that the present application is now in condition for allowance. Early notification of such action is earnestly solicited.

Respectfully submitted,

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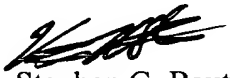

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